11:00

846-3 Fibrinogen Levels and Their Correlation With Established Risk Factors In Young Men: An Epidemiologic Study In 1682 Recruits

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Background: Epidemiologic studies have shown a positive relation of fibrinogen to the risk of cardiovascular events. It is less clear, however, if fibrinogen is associated with plasma lipids and other risk factors of coronary artery disease in young men.

Method: Medical history, plasma lipids, Lp(a) and fibrinogen were measured in 1682 recruits, with mean age 22.5 ± 3.2 years.

Results: Mean plasma level of fibrinogen in the total population was 278 ± 68 mg/dl. Fibrinogen showed significant difference between groups of subjects dividing according to their lipid profile. In subjects with total cholesterol (TC) <200 mg/dl fibrinogen was lower than in those with TC ≥200 mg/dl (267 ± 66 vs 309 ± 64 mg/dl, p < 0.001). In subjects with HDL ≥45 mg/dl fibrinogen was lower than in those with HDL <45 mg/dl (272 ± 66 mg/dl vs 283 ± 68 mg/dl, p = 0.002). Smoking, exercise and body weight do not appear to be related to fibrinogen concentrations. Lipids in two groups of subjects according to level of fibrinogen are shown in table

Fibrinogen	<300 mg/dl	≥300 mg/dl	p value
Subjects	985	697	
TC	158.7 ± 39.2	180.0 ± 40.3	<0.001
HDL	45.8 ± 10.9	43.8 ± 9.7	<0.001
LDL	98.3 ± 38.9	120.9 ± 38.9	<0.001
TGL	73.3 ± 41.2	79.7 ± 35.4	0.001
Lp(a)	18.9 ± 17.5	18.7 ± 36.6	NS
LDL/HDL	2.3 ± 1.2	2.9 ± 1.5	<0.001
TC/HDL	3.6 ± 1.3	4.3 ± 1.6	<0.001

Conclusion: High fibrinogen levels is a common finding in young men and associated with a worse of lipid profile suggesting clustering of atherosclerotic and thrombogenic risk factors.

11:15

846-4 Impaired Endothelium-dependent Vasomotion of Coronary Artery in Subjects With Type-A Behavior

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Backgrounds and Methods: To determine whether type-A behavior, a suspected coronary risk factor, impairs vasomotion of microvascular coronary artery, we infused adenosine triphosphonic acid (ATP) and acetylcholine (Ach) into the normal or minimally diseased (<30%-diameter stenosis) left coronary artery, and estimated the reactive changes using quantitative coronary arteriography and intracoronary doppler-tipped guidewire in 184 subjects. Type-A behavior was graded by questionnaire (scoring 0 to 30 and diagnosing a subject with scores of 17 or more as a subject with Type-A behavior. We evaluated the relationships between type-A behavior, and the ATP-induced maximal increases of the coronary blood flow (FN) and Ach-induced maximal increases of the coronary blood flow (FE), in overall cases and in low-risk subgroup with fewer (number of risk factors proposed by Framingham Heart Study <4) coronary risk factors.

Results: There was no significant difference in baseline demographic and flow-dynamic variables between the subjects with Type-A behavior (Type-A, n = 61), and those without type-A behavior (Type-B, n = 123). There was no significant difference in FN between Type-A and Type-B. FE was smaller in Type-A than Type-B, and the result was enhanced in low-risk subgroup (Table).

Table	Type-A	Type-B	p value
FN	186 ± 77%	184 ± 78%	n.s.
FE (overall)	52 ± 31%	71 ± 51%	0.02
FE (low-risk)	54 ± 36%	86 ± 52%	0.01

Conclusions: These findings suggest type-A behavior is associated with impaired endothelium-dependent vasomotion of coronary artery, which may contribute to atherogenic or thrombogenic processes of coronary artery in subjects with type-A behavior.

11:30

846-5 Hyperleptinemia as a Component of a Metabolic Syndrome of Cardiovascular Risk

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In humans, hyperleptinemia is associated with adiposity, hyperinsulinemia and insulin resistance, core components of a metabolic syndrome of cardiovascular risk. To explore whether hyperleptinemia forms part of this syndrome, 74 healthy men [aged 48.4 ± 1.3 years (mean ± SEM), body mass index (BMI) 25.6 ± 0.3 kg/m^2] underwent measurement of fasting plasma leptin and insulin sensitivity (i.v. glucose tolerance test, IVGTT). Plasma leptin concentrations correlated positively with BMI (r = 0.57), central adiposity (subscapular-to-triceps skinfold ratio, r = 0.34, p = 0.003), systolic and diastolic blood pressure (both r = 0.24, p = 0.044), fasting triglycerides (0.31, p = 0.007), glucose (r = 0.32, p = 0.003) and insulin (r = 0.33, p = 0.004), serum uric acid (r = 0.35, p = 0.003), and IVGTT insulin (r = 0.63, p < 0.001), and negatively with insulin sensitivity (r = −0.32, p = 0.006). In multivariate regression, BMI (standardised coefficient, SC = 0.40, p = 0.001), fasting insulin (SC = 0.23, p = 0.036) and IVGTT insulin (SC = 0.51, p < 0.001) emerged as independent predictors of plasma leptin concentrations (R^2 = 0.56, p < 0.001). We conclude that plasma leptin concentrations are related to principal components of the metabolic syndrome of cardiovascular risk. Further studies could explore whether plasma leptin concentrations could provide an additional measure of cardiovascular risk.

11:45

846-6 Relation Between Birthweight, Endothelial Function and Classical Risk Factors in Young Adults

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Background: Low birthweight is related to increased risk of coronary heart disease in adults and recently has been associated with vascular endothelial dysfunction (a key early event in atherosclerosis) in children. However, the relative influence of intrauterine and classical risk factors on early vascular function is not known.

Methods: Classical risk factors (incl. smoking history, lipid profile, blood pressure, fasting insulin, exercise capacity and body mass index) were measured individually and as a combined risk score, in a population-based sample of 344 adults (169 female 175 male, aged 20 to 28) for whom data on early life (incl. birthweight) was also available. These risk markers were related to the subject's vascular function, measured by quantifying the dilation response of the brachial artery to a flow increase (endothelial-dependent) and to GTN (endothelial-independent).

Results: Endothelial dependent dilation was inversely related to smoking pack years (coef = −0.04, 95%CI −0.07 to −0.004, p = 0.03) and risk score grouping (coef = −0.13, 95%CI −0.25 to 0.00, p = 0.05). Birthweight was positively associated with endothelial dependent dilation in the whole group (coef = 0.18, 95%CI 0.004 to 0.35, p = 0.04), but, the relation was markedly stronger in subjects in the lowest risk score third (coef = 0.44, 95%CI 0.15 to 0.73, p = 0.004) and disappeared in the top third (coef = −0.13, 95%CI −0.53 to 0.27, p = 0.53). Dilation to GTN was not related to birthweight.

Conclusion: There is an association between birthweight and endothelial function in young adults but the influence of classical risk factors on endothelial function alters the relationship in those at higher risk.

847 Exercise Studies in Heart Failure

Tuesday, March 31, 1998, 10:30 a.m.–Noon
Georgia World Congress Center, Room 364W

10:30

847-1 Changes in Central and Peripheral Hemodynamics Induced by Long-Term Physical Exercise Training in Patients With Chronic Heart Failure

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Background: Chronic heart failure (CHF) is associated with neurohumoral activation and heightened peripheral vasoconstriction. The objective of this study was to determine the effect of long-term exercise training (ET) on left ventricular function, sympathetic activity assessed by plasma epinephrine (EPI) and norepinephrine (NOR) levels, and systemic vascular resistance (SVR).